Niveau(x) d'enseignement : 2 Numéro EDUQ : 3670245
Centre d'intérêt : 755

Adiv, Ellen

The effect of a pre-kindergarten program on the development of second language proficiency / Ellen Adiv. -- [Montréal] : Commission des écoles protestantes du Grand Montréal, Instructional Services Department, 1981
v, 27 p. : ill. ; 28 cm.

Titre de la couv. Résumé en français et en anglais. p. ii-iv. Bibliogr. : p. 15. Notes bibliogr. : p. 15

Vedette(s)-secondaire(s) : Commission des écoles protestantes du Grand Montréal. Instructional Services Department

Descripteur(s) : Français (Langue) + Langue seconde + Classe d'accueil + Habileté de communication + Maternelle

Le but de cette étude était d'évaluer l'habileté de communication en français des élèves des classes d'accueil au niveau de la maternelle. Deux groupes d'élèves ont participé à cette étude : un groupe d'élèves qui avaient participé au programme depuis la pré-maternelle et un groupe d'élèves qui n'avaient participé au programme qu'au niveau de la maternelle. Les résultats à divers tests amènent à conclure que le premier groupe communiquait en français plus facilement que le second, mais que la différence n'est pas significative en ce qui a trait à la prononciation, la grammaire et le vocabulaire.

Type de document : r

4070245

The Effect of a Pre-Kindergarten Program on the Development of Second Language Proficiency

Ellen Adiv

Instruction Services Department

The Protestant School Board of Greater Montreal

December 1981

Acknowledgements

This research was made possible by a research grant to the Instructional Services Department, The Protestant School Board of Greater Montreal, from le ministère de l'Education, gouvernement du Québec.

I would like to thank the principals, teachers and students who participated in this research. I am also indebted to the Bilingual Education Project of the Modern Language Center, Ontario Institute for Studies in Education, for permission to adapt its listening comprehension test to our needs.

RESUME

Le but de ces travaux de recherche a été d'évaluer l'habileté linguistique en français des élèves des classes d'accueil au niveau de la maternelle. Deux groupes d'élèves ont participé à cette étude: (1) un groupe d'élèves qui avait participé au programme depuis la pré-maternelle (groupe PK) et (2) un groupe d'élèves qui n'avait participé au programme qu'au niveau de la maternelle (groupe NPK). Un groupe témoin francophone (FC) a été inclus pour fins de comparaison.

L'habileté linguistique en français a été évaluée à l'aide des tests suivants: un test de compréhension auditive et un test de production orale. Le test de production orale a été mesuré selon (1) une évaluation globale de quatre savoir-faire: la prononciation, la grammaire, le vocabulaire et la communication, (2) une évaluation objective basée sur les unités "T" et (3) une analyse linguistique.

Les résultats indiquent que: (1) il y avait moins de différences significatives entre le groupe PK et le groupe témoin francophone qu'entre ce dernier et le groupe NPK; (2) le groupe PK a obtenu des résultats supérieurs à ceux du groupe NPK à l'évaluation de tous les savoir-faire. Cependant il n'y avait que trois savoir-faire pour lesquels la différence entre le groupe PK et le groupe NPK était significative: (1) le nombre d'énoncés produits, (2) l'habileté de communiquer et (3) la complexité syntaxique des énoncés.

Les résultats de cette étude nous mènent à conclure que les étudiants

des classes d'accueil qui ont suivi le programme depuis la pré-maternelle atteignent un niveau de compétence communicative plus élevé que ceux qui n'ont pas suivi le programme en pré-maternelle. Cependant, en ce qui concerne la prononciation, la grammaire et le vocabulaire, la différence entre ces deux groupes n'est pas significative.

SUMMARY

The purpose of this study was to assess French language proficiency in welcoming classes at the kindergarten level. Two groups of kindergarten students participated in the study: (1) a group of students who had previously attended a pre-kindergarten welcoming class program (PK group) and (2) a group who had only entered the welcoming class program in kindergarten (NPK group). A group of francophone students in a regular French kindergarten (FC group) was included for comparison purposes.

French language proficiency was measured by the following tests (1) a listening comprehension test and (2) an oral production test. The oral production test was assessed in three ways: (1) by means of global ratings of four variables : pronunciation , grammar, vocabulary and communication, (2) an objective evaluation based on a T-unit count and (3) a linguistic analysis.

The results indicate that (1) there were fewer significant differences between the PK group and the French control group (FC) than between the latter and the NPK group and (2) the PK group scored numerically higher than the NPK group on all measures of evaluation. However, there were only three measures on which the difference between the PK group and the NPK group were statistically significant: (1) the amount of verbalization, (2) the ability to communicate and (3) the syntactic complexity of the utterances.

The findings of this study lead to the conclusion that kindergarten

students in welcoming classes who have previously attended a pre-kindergarten program develop greater communicative proficiency in French than students who have not attended such a program. However, in terms of pronunciation, grammar and vocabulary, the differences between the two groups are relatively small.

Table of Contents

Page

Introduction 1

The Programs 2

The Method 3

The Samples 3

The Tests 4

Procedure for Administering the Tests 7

Results 8

Summary and Discussion 11

Reference Notes 15

References 16

Tables 17

Appendix: sample of oral production test 21

Since 1976 the P.S.B.G.M. has been operating a special French second language program for immigrants and students who under Bill 101 must attend regular French schools. This program referred to as classes d'accueil or "welcoming class" program lasts for nine months, after which time students are integrated into regular French classrooms at the grade level appropriate to the students' age. Up to the 1981-1982 school year, welcoming classes were situated either in regular English medium schools, with little or no exposure to French outside the classroom, or in French medium schools, where the school environment provides a broader French milieu. Comparative studies of welcoming classes at the kindergarten level revealed no significant differences in French proficiency between students in English schools and those in French schools, except when students in the latter milieu were partially integrated into a franco-phone kindergarten. On this case, the students in the French schools were significantly more verbal than students from welcoming classes where there was no direct contact with native peers. Moreover, in terms of syntactic development, the speech of these integrated students was more native like than that of students in English schools (Adiv, Notes 1 and 2).

In addition to the welcoming classes at the kindergarten level, the P.S.B.G.M. has instituted in 1978 a French pre-kindergarten program for non-native speakers. The purpose of this program is to provide a richer second language experience for students of various linguistic back-grounds prior to their integration into a regular French class in grade 1.

The purpose of the present study is to investigate whether attendance in a pre-kingergarten welcoming class has a significant effect on the

level of French proficiency achieved at the end of the kindergarten program.

The Programs

The program of the kindergarten and pre-kindergarten welcoming classes follows the basic guidelines of the regular French kindergarten curriculum of the P.S.E.G.M. (for a description see Ventura and Hindson (Note 3). Language instruction is informal and is organized around themes which are of interest to children of this age. Most of the themes are carried over from pre-kindergarten to kindergarten where they are exploited more in depth.

In most schools the pre-kindergarten students attend school for half a day and the kindergarten students attend school for a full day. In some exceptional cases the order is reversed, i.e., the pre-kindergarten students attend school for a full day and the following year these students attend kindergarten classes for only half a day.

Students who have previously attended a pre-kindergarten program and who are now in kindergarten are usually kept apart from students who have not attended such a program, since it is felt that their level of French is above that of students who are new to the program. In schools where the number of students in the welcoming classes is small, students who have previously attended a pre-kindergarten program and students who have had no pre-kindergarten experience share the same room. However, even here these two groups usually function as separate units at least for some of the daily activities.

The Method

The Samples

Three groups of kindergarten students participated in this study: (1) a group of kindergarten students who had previously attended a pre-kindergarten program(age of entrance into program 4 years),(2) a group of students who had not attended the welcoming class program at the pre-kindergarten level (age of entrance into program 5 years), (3) a group of francophone Kindergarten students who served as a control group.

Only two of the schools included in this study were considered French schools at the time the research was carried out. Moreover, except for the French control group, practically all the students included in this study attended English schools. This was due to two factors: (1) In one of the French schools there was no full day welcoming class program at the kindergarten level during the 1980-1981 school year. (2) In the other French school the majority of kindergarten students in the welcoming class were of Haitian origine. Since these students spoke either creole (which is to some extent related to French) or creole and French at home, they were excluded from the study.

Most of the students who had previously attended a pre-kindergarten program (hereafter PK group) as well as most of the students who had only entered the program in kindergarten (hereafter NPK group) were of Greek origine (48%) and spoke either only Greek or Greek and English at home. The second largest linguistic group consisted of anglophone Canadians (38%) who spoke only English at home. The remaining 14% of the students were of different linguistic backgrounds, mainly Spanish, Italian and Vietnamese.

All the students in the control group (hereafter FC group) were francophones and spoke no language other than French. A summary of the exact sample sizes according to program (NPK, PK and FC) is given in Table 1A. The names of the participating schools are indicated in Table 1B.

All the students were administered the Coloured Progressive Matrices test (revised order Raven 1956) in order to control for possible differences in mental ability between the groups.

The Tests

The following French language tests were administered: (i) a listening comprehension test and (ii) an oral production test.

(i) The Listening Comprehension Test

This test was adapted from the French comprehension test developed by the Ontario Institute for Studies in Education (Barik, 1977). The test consists of three parts. In part I, the students had to select the picture that corresponded to a word or sentence presented orally. In part 2, the students had to select the picture that answered a question presented orally. In part 3, short stories were read orally.Each story was followed by a number of questions also presented orally. For each question the student had to select the picture that represented the correct answer. In each case, the correct picture had to be chosen from four alternatives. In all, the test comprised 40 items. Each part was scored separately and the scores of the three parts were then added together for each student. Both the total scores and the scores of each subtest were considered in the analysis of the results.

(ii) The Oral Production Test

This test was developed by the research department of the P.S.B.G.M.

It consisted of three sets of pictures. The pictures were constructed so as to elicit syntactic units containing subject-verb and subject-verb-object relationships. Each set of pictures depicted a story (see appendix). The students were asked to narrate what they saw in the pictures. In the case of the first set, the students were asked a question about each picture. The other two sets were introduced by starting the story and asking the students to continue. If a student did not complete the story he was urged on by questions such as "et qu'est-ce qui se passe ici?" (and what is happening here?).

To assess the students' proficiency in oral production three different measures of evaluation were used. First, each student's speech sample was evaluated by two raters, working independently, on four different dimensions: pronunciation, grammar, vocabulary and communication. The ratings ranged from a maximum of 5, indicating native-like skill, to a minimum of 1, indicating very poor skill. The evaluations of both raters were combined to form an average score for each dimension. Second, a more objective evaluation of the quantitative and qualitative performance of the students' speech samples was provided by counting the number of T-units and the percentage of correct T-units produced by each student. A T-unit has been defined as "a main clause plus all subordinate clauses and non-clausal structures attached to or embedded in it" (Hunt, 1970:4). The T-unit has been suggested as a measure of second language development (Larsen-Freeman and Strom 1977) and has been used to assess oral and written speech samples of second language learners (Scott and Tucker 1974). Third, the students' speech samples were analyzed linguistically according

to four measures, adapted from Andreani et al. (Note 4): a) the number of syntactic units, b) the mean length of an utterance, c) the mean value of a syntactic unit and d) the average complexity of a syntactic unit.

a) The number of syntactic units referred to the number of utterances produced in French. An utterance was defined as a simple sentence. In case a sentence was grammatically incomplete but acceptable within the context, it was counted as a syntactic unit. For each student, the total number of syntactic units was counted.

b) The mean length of a syntactic unit referred to the average number of words used per syntactic unit. The total number of words produced by each student was counted and divided by the number of syntactic units produced by that student.

c) The mean value of a syntactic unit. The purpose of this measure was to evaluate the children's ability to speak French beyond the minimal responses elicited by the tester's questions. A score of (2) was given for a complete syntactic unit, i.e. if the syntactic unit was a complete simple sentence. A score of (1) was given if the syntactic unit was either semantically or syntactically incomplete even though it was contextually acceptable. A score of (0) was given when there was no response to the stimulus or when the entire utterance was given in English. Each student's total score was then divided by the number of syntactic units produced by that student.

d) The average complexity of a syntactic unit. The number of syntactic relations attached to the verb, such as subject-verb, object-verb, prepositional phrase, etc. was counted. The verb could be either present in the utterance or understood from the context. The total number of syntactic relations produced by a student was then divided by the total number of syntactic units produced by that student.

In addition to these measures, the number of subject pronouns used by each student in picture set I was recorded and categorized as either correct or incorrect. The students' production of pronouns was felt to be of special interest because previous studies (Adiv, Notes 2 and 5) had shown that students in other French second language programs tend to avoid pronominalization.

Procedure for Administering the Tests

All the tests were administered in May and June 1981. The listening comprehension test was administered to groups of 16 students or less. Each testing session lasted 40 minutes. All test items and general instructions were given in French, but the tester always made sure that all the students had understood the instructions. The oral production test was administered individually to each student. The test took approximately 10 minutes to administer and each testing session was tape recorded. In the evaluation of the oral production test, the global ratings were scored directly from the tapes. The tapes were then transcribed for further analysis of the quantitative and qualitative performance of each student. Because of the lengthly procedure involved in the individual testing and subsequent linguistic analyses, only two thirds of the total sample of students were administered the oral production test.

Results

The students' scores on the Raven's Coloured Progressive Matrices test were analyzed first, using a one-way analysis of variance procedure. The main variable was kindergarten group: NPK, PK and FC. The analysis revealed no significant differences among the three groups (Table 2). There is, thus, no reason to believe that intellectual ability was a factor affecting the results of the French language tests.

The French language tests were analyzed next using the same analysis of variance procedure. Except in the case of two measures pertaining to the linguistic analysis of the data, the raw scores of the test results were used in the statistical analysis. All the test results are summarized in Table 3. In the case of the two above-mentioned measures (percentage of correct T-units and percentage of correct pronouns) the raw scores were converted using the $y = 2 \arcsin\sqrt{x}$ transformation. Thus, for these two measures, the results shown in Table 3 are based on the transformed scores. For more meaningful interpretation of these results, the percentages are presented in parentheses above the transformed scores. All the results of the French language tests will be discussed below.

The Listening Comprehension Test

The results of the listening comprehension test reveal that on the total score (maximum = 40) the FC group ($\bar{X} = 31.07$) performed significantly better than both the NPK group and the PK group. There was no statistically significant difference between the latter two groups, although the PK group ($\bar{X} = 26.60$) scored numerically higher than the NPK group ($\bar{X} = 24.29$). Similarly, on subtests I and II, which measured comprehension of discrete vocabulary items and grammatical structures, (maximum scores

22 and 9 respectively) the FC group (subtest I, $\bar{X}$ = 17.86; subtest II, $\bar{X}$ = 7.00) performed significantly better than the other two groups. Here too, there was no statistically significant difference between the NPK group (subtest I, $\bar{X}$ = 14.03; subtest II, $\bar{X}$ = 5.34) and the PK group (subtest I, $\bar{X}$ = 15.73; subtest II, $\bar{X}$ = 5.50), although on both of these subtests the PK group scored again numerically higher than the NPK group. In contrast, on subtest III, which measured more global aspects of comprehension (maximum score 9) there were no significant differences among the three groups. Numerically the rank ordering on subtest III was the same as for subtests I and II above: (1) FC ($\bar{X}$ = 6.21), (2) PK ($\bar{X}$ = 5.33) and (3) NPK ($\bar{X}$ = 4.91).

The Oral Production Test

The global evaluation. The results of the global evaluation reveal a pattern similar to that noted for most of the listening comprehension subtests. On three of the four measures the FC group (pronunciation $\bar{X}$ = 4.96; grammar, $\bar{X}$ = 4.50; vocabulary, $\bar{X}$ = 4.77) was rated significantly higher than the NPK and PK groups and there was no stastically significant difference between the latter two groups. Numerically, the PK group (pronunciation $\bar{X}$ = 4.04; grammar, $\bar{X}$ = 3.46; vocabulary, $\bar{X}$ = 3.75) was rated higher than the NPK group (pronunciation, $\bar{X}$ = 3.92; grammar, $\bar{X}$ = 3.27; vocabulary, $\bar{X}$ = 3.56. On the fourth measure (communication), the FC group ($\bar{X}$ = 3.81) was still rated significantly higher than the NPK group $\bar{X}$ = 3.13); however, here there was no significant difference between the FC group and the PK group ($\bar{X}$ = 3.57). Finally, as on the previous measures, there was no significant difference between the NPK group and the PK group on this measure.

Objective evaluation. The results of the quantitative evaluation (total number of T-units) reveal that the PK group ($\bar{X}$ = 26.29) produced significantly more T-units than both the NPK group ($\bar{X}$ = 21.26) and the FC group ($\bar{X}$ = 20.62). There was no significant difference between the NPK group and the FC group on this measure. Interestingly, the FC group produced the smallest number of T-units.

From a qualitative perspective, the FC group produced a significantly higher percentage of correct T-units (87%) than the NPK group (45%) and the PK group (55%). Again, the percentage of correct T-units produced by the PK group was numerically higher than that produced by the NPK group; however, this difference failed to reach statistical significance.

The analysis of the students' use of pronouns reveals no significant differences between any of the groups in terms of the number of pronouns used. However, once again, there was a significant difference between the FC group and the two other groups in terms of percentage of pronouns used correctly. The FC group produced no errors *at* all here (100% correct), whereas both the PK group (39% correct) and the NPK group (21% correct) used relatively many incorrect pronouns. As in previous studies (Adiv Notes 3 and 4), practically all the errors consisted of the substitution of the masculine pronoun forms il, ils for the required feminine forms elle, elles.

Linguistic Analysis. As in the case of the T-units, the PK group ($\bar{X}$ = 28.38) produced significantly more syntactic units than the NPK group ($\bar{X}$ = 22.52) and the FC group ($\bar{X}$ = 21.54) and there was no significant difference between the latter two groups. On the other hand, the FC group ($\bar{X}$ = 5.71) produced significantly longer syntactic units than the NPK group ($\bar{X}$ = 4.81), whereas

there was no significant difference between the PK group ($\bar{X} = 5.26$) and the FC group on this measure.

With regard to the other two measures of the linguistic analysis (mean value of a syntactic unit and average complexity of a syntactic unit), the NPK group (value of a syntactic unit, $\bar{X} = 1.41$; complexity $\bar{X} = 1.67$) scored significantly lower than both the PK group (value of a syntactic unit $\bar{X} = 1.53$; complexity, $\bar{X} = 1.89$) and the FC group (value of a syntactic unit $\bar{X} = 1.57$; complexity, $\bar{X} = 1.90$). There was no significant difference between the latter two groups on either of these measures.

Summary and Discussion

The results of this study can be summarized as follows:

(1) There were no significant differences between the NPK group and the PK group on: (i) the listening comprehension test; (ii) the global evaluation of the oral production test; (iii) the percentage of correctly produced T-unit; (iv) pronoun usage (total number and percentage correct) and (v) the mean length of a syntactic unit.

(2) The performance of the PK group was significantly better than that of the NPK group on the following measures: (i) the total number of T-units produced; (ii) the total number of syntactic units produced; (iii) the mean value of a syntactic unit and (iv) the average complexity of a syntactic unit. Moreover, the PK group scored numerically higher than the NPK group on all measures of evaluation.

(3) The PK group scored significantly lower than the FC group on (i) the listening comprehension test (except subtest III); (ii) three measures of the global evaluation (pronunciation, grammar and vocabulary) and

on two measures of the objective evaluation of the oral production test (percentage of correct T-units and percentage of correctly used pronouns). On the other hand, there was no significant difference between the PK group and the FC group on the following measures: (i) subtest III of the listening comprehension test; (ii) communication skills (global evaluation); (iii) number of pronouns used and (iv) three qualitative measures of the linguistic analysis(average length, value and complexity of a syntactic unit).

(4) The NPK group's performance was significantly lower than that of the FC group on all measures of evaluation except on three quantitative measures of the oral production test (number of T-units, number of pronouns and number of syntactic units) and on subtest III of the listening comprehension test.

In summary, the results of this study reveal only few statistically significant differences between the NPK group and the PK group. However, the finding that the numeric values of the PK group's scores were consistently higher than those of the NPK group suggests that the students in the PK group were, to some extent, more proficient in French than the NPK students. Further support for this conclusion can be found in the results of the comparison between the FC group and the other two groups. Here it was noted that there were fewer significant differences between the FC group and the PK group than between the FC group and the NPK group. It is particularly noteworthy that the performance of the PK group was comparable to that of native speakers of the same age when qualitative measures of a more integrative nature

such as length and complexity of sentences were considered. On the other hand, this was not the case when the groups were compared on qualitative measures of linguistic accuracy such as percentage of correct sentences. This finding is characteristic of second language development in natural and quasi-natural environments (Lambert and Tucker 1972) where the learning context is one which lends priority to the development of communicative skills. Similar results have been noted in previous studies pertaining to welcoming classes (Adiv Notes 1 and 2) as well as to language development in French immersion programs (Adiv Notes 5 and 6, Harley and Swain, Note 7; Setton, Note 8; Spilka 1976).

A somewhat surprising finding that emerges from this study is that, in terms of total amount of verbalization, the PK group was significantly more verbal than the native speakers. It is possible that the students in the PK group had to have frequently recourse to lengthly paraphrases and circumlocutions in contexts where they did not know the appropriate lexical items, whereas such items would be part of the native speakers' more extensive vocabulary. The question then arises as to why the NPK group did not use similar strategies . One possible explanation may be that the PK group had developed more adequate communicative skills than the NPK group because of that group's more extensive exposure to the second language. In other words, while the PK students may not have acquired a noticeably larger vocabulary or grammatically more correct structures than the NPK students, they may have developed greater flexibility in the use of the language. This hypothesis seems to be supported by the finding that the two evaluators rated the NPK students' communicative skills significantly lower than those of the FC students, whereas their ratings of the PK students' communicative

skills did not differ significantly from those of the native speakers.

In conclusion, the findings of this study suggest that kindergarten students in welcoming classes who have previously attended a pre-kindergarten program develop greater fluency in French than students who have not attended such a program. However, in terms of pronounciation, grammar and vocabulary, the differences between the two groups are relatively small. It is noteworthy that the measures on which there were significant differences between the two groups are the same measures on which kindergarten students in partially integrated welcoming classes were found to be more native-like than students who had no direct contact with francophone peers (Adiv, Note 1). Since none of the PK students in this study were in partially integrated classes, it may be the case that the headstart the students got in the pre-kindergarten program compensated, to some extent, for the absence of native peer models in the classroom.

Reference Notes

1. Adiv, E. A comparison of Early Immersion and Classes d'Accueil Programs at the kindergarten level. Instructional Services Department. The protestant School Board of Greater Montreal, 1979.

2. Adiv, E. Starting French in kindergarten: The effects of program, mother tongue and other linguistic experience on second language development. Instructional Services Department. The Protestant School Board of Greater Montreal, 1980.

3. Venture, E. & Hindson, P. Programmes d'études maternelle et pré-maternelle. Bureau des écoles protestantes du Grand Montréal, 1980.

4. Andreani, P. Feider, H., Hardy Roch, M., and Lortie, A.M. Etude comparative sur l'apprentissage du français entre les enfants-immigrants en classe d'accueil et les enfants-immigrants en insertion directe. La Commission des écoles catholiques de Montréal, 1978.

5. Adiv, E. An analysis of second language performance in two types of immersion programs. Unpublished Ph. D. dissertation. McGill University 1980.

6. Adiv, E. An analysis of second language performance in an early immersion program: Grades 3, 4 and 5. Instructional Services Department, The Protestant School Board of Greater Montreal, 1980.

7. Harley, B., and Swain, M. A descriptive approach to French Immersion speech: Focus on the verb system. The Ontario Institute for Studies in Education, 1977.

8. Setton, A. Etude morphosyntaxique de la langue parlée par les enfants anglophones des classes expérimentales d'immersion de l'école élémentaire "St.Lambert" à St. Lambert, Québec. Unpublished M. A. Thesis, Université de Montréal, 1974.

References

Hunt, K.W. Syntactic maturity in school children and adults. Monographs of the Society for Research in Child Development, 1970, 53, 1.

Lambert, W.E. and Tucker, G. R. Bilingual education of children. The St-Lambert experiment. Rowley, Mass.: Newbury House, 1972.

Larsen-Freeman, D., and Strom, V. The construction of a second language acquisition index of development. Language Learning, 1977, 27, 123 - 124.

Scott, M.S. and Tucker, R.G. Error analysis and English language strategies of Arab students. Language Learning, 1974, 24, 69-97.

Spilka, I.V. Assessment of second language performance in immersion programs. The Canadian Modern Language Review, 1976, 32, 243-261.

Table 1

(A) Sample Sizes According to Program

No Pre-Kindergarten group (NPK)	35
Pre-Kindergarten group (PK)	30
French Control group (FC)	14

(B) Participating Schools

Algonquin Maisonneuve Nesbitt Peace Centennial Westminster

Table 2

Summary of Coloured Progressive Matrices Test Scores[a]

	$\bar{X}$	range
NPK	17.86	9 - 28
PK	17.77	9 - 28
FC	17.36	12 - 24

$F = 0.06$, $df.2,76$

[a]Maximum Score = 36

Table 3

Summary of French Test Results[a]

	NPK	PK	FC	F ratio	df
Listening Comp. Test					
- Total (40)[b]	24.29	26.60	31.07	5.99**	2,76
- Subtest I (22)	14.03	15.73	17.86	7.18**	2,76
- Subtest II (9)	5.34	5.50	7.00	4.73*	2,76
- Subtest III (9)	4.91	5.33	6.21	1.71	2,76
Oral Production Test					
Global evaluation					
- Pronunciation (5)	3.92	4.04	4.96	74.86***	2,50
- Grammar (5)	3.27	3.46	4.50	43.34***	2,50
- Vocab. (5)	3.56	3.75	4.77	26.69***	2,50
- Communication (5)	3.13	3.57	3.81	4.68*	2,50
Objective evaluation					
T-units					
- Total	21.26	26.29	20.62	4.56*	2,51

Table 3 (cont'd)

Summary of French Test Results[a]

	NPK	PK	FC	F ratio	df
	(45)	(55)	(87)		
- Percentage correct[c]	1.47	1.67	2.39	33.78***	2,51
Pronouns					
- Total	5.08	4.23	4.33	1.76	2,44
	(21)	(39)	(100)		
- Percentage correct	0.95	1.35	3.14	15.73***	2,44
Linguistic analysis					
- Number of syntactic units	22.52	28.38	21.54	5.28**	2,50
- Mean length of a syntactic unit	4.85	5.26	5.71	5.15**	2,50
- Mean value of a syntactic unit	1.41	1.53	1.57	6.72**	2,50
- Complexity of a syntactic unit	1.67	1.89	1.90	10.34***	2,50

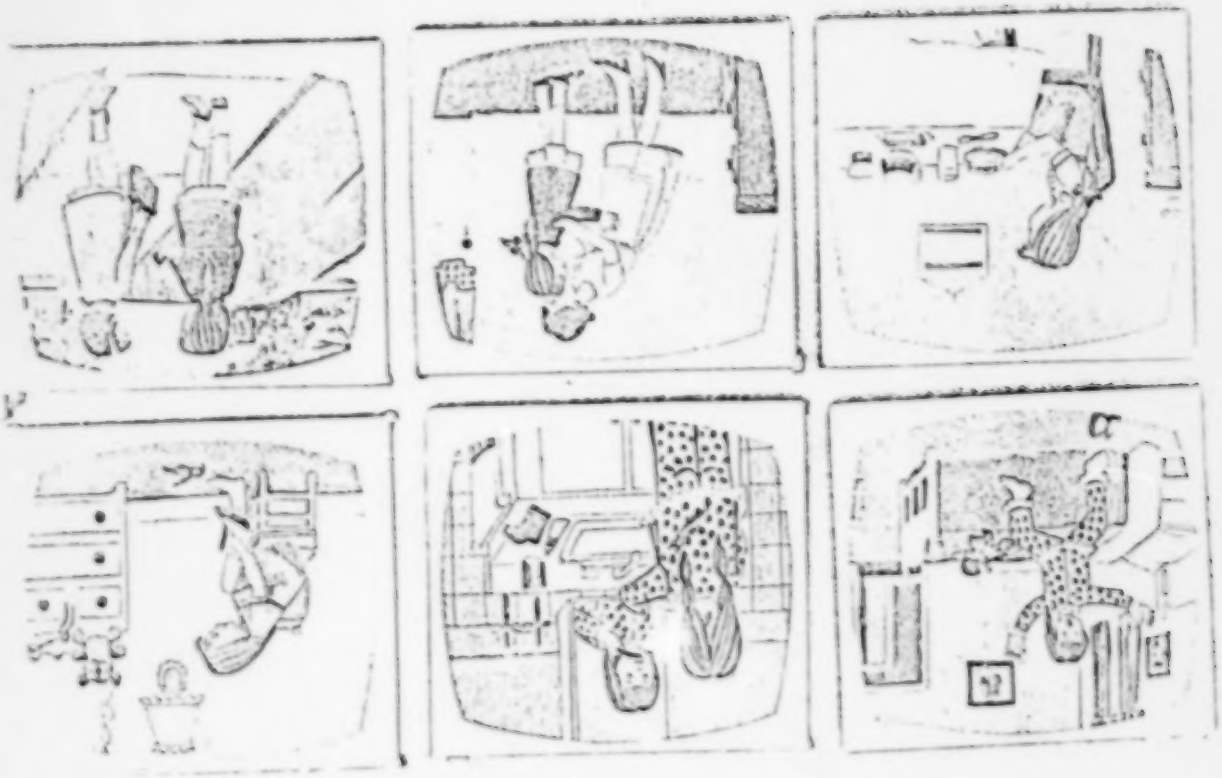
* $p < .05$ ** $p < .01$ *** $p < .001$

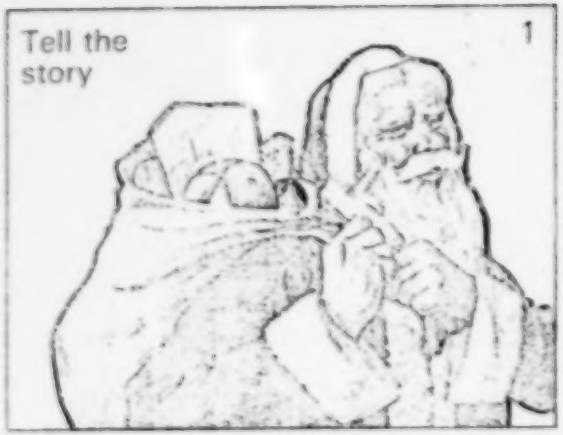
[a] Mean scores joined by a line differ significantly from one another

[b] Maximum scores in parentheses

[c] Statistical analysis based on transformed scores. Percentage values shown in parentheses have been derived from transformed scores

APPENDIX




Tell the
story
1

2

3

4